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SEVEN NEW SPECIES OF STOMATOPOD CRUSTACEANS FROM THE NORTHWESTERN ATLANTIC<sup>1</sup>

BY RAYMOND B. MANNING

*Institute of Marine Science, University of Miami*

The following new species were discovered while examining stomatopod crustaceans from various sources during the course of a general revision of the western Atlantic members of the group. As it will be some time before the revision can be completed, differential diagnoses for the species are presented here in order to make the species known.

The count of teeth on the raptorial dactylus always includes the terminal tooth. The measurements given after the number of specimens in the material examined are total length. The letters UMML (The Marine Laboratory, University of Miami) or USNM (U. S. National Museum) after each lot indicate where that lot of material will be deposited.

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*Squilla chydæa*, new species

Eyes large, triangular, corneal axis exceeding peduncular axis; cornea placed obliquely on stalk; rostral plate elongate with a faint median carina; median carina of carapace bifurcate anteriorly; anterolateral spines of carapace not extending to rostral base; posterolateral margin of carapace with a distinct angle; raptorial claw large, dactylus armed with six teeth; outer margin of dactylus a simple curve; five epipods present; mandibular palp present; lateral process of fifth thoracic somite a single spine, strongly curved anteriorly; lateral processes of sixth and seventh thoracic somites acute, sharp, directed posterolaterally, each with an anterior lobe; submedian carinae present on last three thoracic and all abdominal somites; abdominal carinae sharp, spined as follows: submedian, (4) 5-6; intermediate, (1) 2-6; lateral, 1-6; marginal, 1-5; telson with prelateral lobes and six strong, elongate, marginal spines; denticles 2-4, 7-11, 1; penultimate segment of outer branch of uropod with seven to eight, usually eight, graded, movable spines, last not extending to midpoint of ultimate segment.

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*Remarks:* This species closely resembles *S. lijdingi* Holthuis from the northern coast of South America. The elongate eyes, elongate rostral plate with a faint median carina, strongly curved lateral process of the fifth thoracic somite, and markedly elongate marginal spines of the telson, separate this species from *S. lijdingi*. Mature males of *S. chydaea* have noticeable swellings at the bases of the marginal teeth of the telson.

*S. chydaea* also resembles *S. brasiliensis* Calman, but the latter species has stouter eyes, a shorter and anteriorly rounded rostral plate which lacks a median carina, and more marked swellings on the telson of mature males.

*S. chydaea* has been recorded in the literature as *S. brasiliensis* Calman (Springer and Bullis, 1956; Manning, 1959).

The name *chydaea* (Latin *chydaeus* = abundant) alludes to the abundance of this very common species.

*Holotype:* 1 ♂, 97.5 mm; Gulf of Mexico (Florida); 30°02.5'N, 86°53'W; 60 fms; OREGON Sta. 332; 5 May 1951; USNM 92387.

*Paratypes:* 1 ♀, 78.7 mm; Gulf of Mexico (Mexico); 24°12'N, 97°17'W; 40 fms; OREGON Sta. 662; 13 November 1952; USNM 94465.

1 ♂, 68.3 mm; 2 ♀ ♀, 69.0–71.7 mm; Gulf of Mexico (Texas); 27°46'N, 96°51.5'W; 13 fms; PELICAN Sta. 39; 20 April 1938; USNM.

2 ♂ ♂, 70.2–74.9 mm; 1 ♀, 82.8 mm; Gulf of Mexico (Texas); PELICAN Sta. 42; 22 April 1938; USNM.

1 ♂, 65.0 mm (damaged); 2 ♀ ♀, 52.4–108.2 mm; Gulf of Mexico (Texas); 27°18'N, 96°02'W; 200 fms; OREGON Sta. 162; 28 November 1950; USNM 91947.

1 ♂, 85.1 mm; Gulf of Mexico (Texas); 27°22'N, 96°08'W; 103 fms; OREGON Sta. 156; 27 November 1950; USNM 92385.

1 ♀, 108.1 mm; Gulf of Mexico (Texas); 27°29'N, 96°16'W; 58 fms; OREGON Sta. 159; 27 November 1950; USNM 92386.

1 ♂, 76.7 mm; 1 ♀, 70.2 mm; SE of Port Aransas, Texas; 14 fms; H. Compton; 14 March 1961; USNM 107022.

3 ♂ ♂, 76.4–92.6 mm; 1 ♀, 105.4 mm; Gulf of Mexico (Louisiana); 28°48'N, 89°51'W; 30 fms; PELICAN Sta. 69–6; 13 May 1939; USNM.

1 ♀, 74.7 mm; Gulf of Mexico (Louisiana); 28°14'N, 91°41'W; 39 fms; PELICAN Sta. 84–3; 12 July 1938; USNM.

1 ♀, 117.1 mm; Gulf of Mexico (Louisiana); 28°19.5'N, 91°24'W; 35 fms; PELICAN Sta. 85–6; 12 July 1938; USNM.

1 ♂, ca. 87.0 mm (damaged); Gulf of Mexico (Louisiana); 28°39.5'N, 89°58.5'W; 80 fms; PELICAN Sta. 96–1; 14 November 1938; USNM.

1 ♂, 61.7 mm; 1 ♀, 59.3 mm; south of Grand Isle, Louisiana; 15 fms; C. E. Dawson; 20 November 1959; USNM 104748.

1 ♂, 74.5 mm; Gulf of Mexico (Louisiana); 29°22'N, 88°40'W; 28 fms; OREGON Sta. 843; 22 October 1953; USNM 96278.

1 ♀, 104.5 mm; Gulf of Mexico (Louisiana); 29°14'N, 88°35'W; 40 fms; OREGON Sta. 90; 24 August 1950; USNM 92384.

1 ♀, 71.6 mm; Gulf of Mexico (Louisiana); 29°14'N, 88°35'W; 37 fms; OREGON Sta. 88; 23 August 1950; USNM 91439.

1 ♀, 69.9 mm; Gulf of Mexico (Louisiana); 29°12'N, 88°50'W; 30 fms; OREGON Sta. 103; 12 September 1950; USNM 91438.

1 ♀, 104.6 mm; Gulf of Mexico (Louisiana); 29°07.5'N, 88°50.5'W; 46 fms; OREGON Sta. 101; 12 September 1950; USNM 91440.

2 ♀ ♀, 79.1–82.5 mm; Gulf of Mexico (Louisiana); 28°53.5'N, 89°36.5'W; 37 fms; OREGON Sta. 107; 13 September 1950; USNM 91441.

2 ♂ ♂, 78.4–108.5 mm; Gulf of Mexico (Louisiana); 28°50'N, 89°33'W; 43 fms; OREGON Sta. 342; 7 May 1951; USNM 92389.

2 ♂ ♂, 85.6–104.1 mm; Gulf of Mexico (Louisiana); 28°50'N, 89°33'W; 43 fms; OREGON Sta. 340; 7 May 1951; USNM 92388.

1 ♂, 60.6 mm; 3 ♀ ♀, 69.4–81.0 mm; Gulf of Mexico (Louisiana); 28°55'N, 89°15'W; 33 fms; OREGON Sta. 845; 23 October 1953; USNM 96287.

1 ♂, 112.5 mm; Gulf of Mexico (Louisiana); 28°04'N, 92°05'W; 43 fms; SILVER BAY Sta. 181; 22 September 1957; UMML.

1 broken ♀; Gulf of Mexico (Louisiana); 28°07'N, 92°37'W; 49 fms; SILVER BAY Sta. 182; 22 September 1957; UMML.

1 ♀, 123.4 mm; Gulf of Mexico (Mississippi); 29°11'N, 88°30'W; 88.5 fms; PELICAN Sta. 11; 5 February 1938; USNM.

1 damaged ♂; Gulf of Mexico (Mississippi); 29°13.5'N, 88°12'W; 125 fms; OREGON Sta. 2203; 26 June 1958; UMML.

1 ♂, 124.5 mm; 1 ♀, 123.0 mm; Gulf of Mexico (Mississippi); 29°16.5'N, 88°04.5'W; 90/80 fms; OREGON Sta. 2827; 17 July 1960; UMML.

1 ♂, 108.0 mm; Gulf of Mexico (Florida); 29°50'N, 86°30'W; 50 fms; OREGON Sta. 944; 21 March 1954; USNM 96401.

### ***Squilla discors*, new species**

Eyes large, triangular, corneal axis exceeding peduncular axis; cornea placed obliquely on stalk; rostral plate without carinae, length and width subequal; median carina of carapace not bifurcate anteriorly; anterolateral spines of carapace not extending to rostral base; postero-lateral margin of carapace angled anteriorly; raptorial dactylus armed with six teeth, outer margin a simple curve; five epipods present; mandibular palp present; lateral process of fifth thoracic somite a strong spine, curved anteriorly; lateral processes of sixth and seventh thoracic somites sharp, directed posteriorly, that of the seventh with a prominent anterior lobe; submedian carinae present on last three thoracic and all abdominal somites; intermediate carinae of sixth, seventh, and eighth thoracic somites spined posteriorly in old specimens; abdominal carinae spined as follows: submedian, (4) 5–6; intermediate, (1) 2–6; lateral, 1–6; marginal, 1–5; telson with prelateral lobes and six strong marginal spines; dorsal surface of telson distinctly tuberculated; denticles 5–7, 8–11, 1; penultimate segment of outer branch of uropod with six to eight graded, movable spines, last not extending to midpoint of ultimate segment.

*Remarks:* This species is closely related to the Atlantic *S. rugosa* Bigelow and to the eastern Pacific *S. hancocki* Schmitt, inasmuch as the dorsal surface of the telson is tuberculated. *S. discors* can be distinguished from *S. rugosa* by the more elongate cornea, the elongate-triangular rostral plate, the anteriorly curved lateral process of the fifth thoracic somite, the lack of accessory spinules on the fifth and sixth abdominal somites, and the smaller number of carinae and tubercles on the dorsal surface of the telson. The shape of the eyes, rostral plate, and lateral processes of the thoracic somites will separate *S. discors* from *S. hancocki*.

The specimen from COMBAT Sta. 334 was reported by Manning (1959) as *S. rugosa pinensis* (Lunz).

The specific name is from the Latin (*discors* = different) and alludes to the distinctness of this species from *S. rugosa*, with which it has been confused for many years.

*Holotype:* 1 ♂, 63.3 mm; Caribbean Sea (Venezuela); 11°07'N; 62°14'30"W; 73 fms; ALBATROSS Sta. 2120; 30 January 1884; USNM 7832.

*Paratypes:* 1 ♂, 43.2 mm; 3 ♀ ♀, 24.1–40.3 mm; off North Carolina; 35°08'30"N, 75°10'W; 49 fms; ALBATROSS Sta. 2596; 17 October 1885; USNM 11260.

1 ♀, 57.7 mm; off East Florida; 29°15'N, 80°13'W; 30 fms; COMBAT Sta. 334; 1 June 1957; UMML.

1 ♂, 44.7 mm; Great Bahama Bank; 26°06'N, 79°10'W; 122/125 fms; SILVER BAY Sta. 2480; 9 November 1960; UMML.

2 ♂ ♂, 39.0–43.7 mm; Great Bahama Bank; 23°35'N, 79°34'W; 130/100 fms; SILVER BAY Sta. 2460; 6 November 1960; USNM.

6 ♂ ♂, 29.2–51.0 mm; 10 ♀ ♀, 29.0–53.0 mm; 4 miles off Islamorada, Florida; 40 fms; D. deSylva, M. Manning, W. Starck II; 20 August 1961; UMML.

1 ♀, 41.8 mm; Gulf of Mexico (Florida); 29°50'N, 86°30'W; 50 fms; OREGON Sta. 944; 21 March 1954; USNM.

1 broken ♂; Gulf of Mexico (Florida); 28°30'N, 85°36'W; 120 fms; OREGON Sta. 36; 27 June 1950; USNM 91097.

1 ♀, 52.1 mm; Gulf of Mexico (Florida); 28°09'N, 84°54'W; 80 fms; OREGON Sta. 920; 11 March 1954; USNM 96400.

2 ♂ ♂ (1 broken), 40.2 mm; 3 ♀ ♀, 37.0–56.7 mm; Gulf of Mexico (Florida); 26°36'30"N, 83°15'30"W; 27 fms; ALBATROSS Sta. 2411; 18 March 1885; USNM 9832.

2 ♀ ♀, 28.0–31.6 mm; southern Caribbean Sea; no other data; UMML.

#### ***Squilla randalli*, new species**

Eyes large, triangular, cornea set transversely on stalk; rostral plate cordiform, without carinae; carapace without carinae except for reflected marginals and short laterals on posterior fourth; anterolateral angles of carapace not armed; posterolateral margins not angled; raptorial dactylus

armed with four teeth; three epipods present; mandibular palp absent; lateral process of fifth thoracic somite a blunt lobe running obliquely dorso-ventrally; a pair of sharp ventral spines present on this somite; lateral processes of sixth and seventh thoracic somites rounded laterally, spined posteriorly; submedian carinae present on sixth abdominal somite only; abdominal carinae spined as follows: submedian, 6; intermediate, 5-6; lateral, 1-6; marginal, 1-5; telson without prelateral lobes, with six strong marginal spines, submedians with movable tips; submedian carinae short; denticles 4-5, 7, 1; basal prolongation of uropod with six to nine long teeth on inner margin; penultimate segment of uropod with seven graded, movable spines on outer margin, last extending past midpoint of ultimate segment.

*Remarks:* A small species resembling *S. quadridens* Bigelow in the short submedian carinae on the telson. *S. randalli* differs from *S. quadridens* Bigelow, *S. tricarinata* Holthuis, and *S. schmitti* Lemos de Castro in having but three epipods and in having the lateral processes of the sixth and seventh thoracic somites produced into strong spines directed posteriorly.

The species is named for John E. Randall who collected this and several other species of stomatopods for the author in the U. S. Virgin Islands.

*Holotype:* 1 ♀, 23.8 mm; off Yawzi Point, Lameshur Bay, St. John, Virgin Islands; depth 30 feet; J. Randall and L. P. Thomas; 21 December 1958; USNM 107873.

#### ***Lysiosquilla campechiensis*, new species**

Eyes large, triangular, corneal axis exceeding peduncular axis; rostral plate cordiform, broader than long, with median carina on anterior third; carapace without carinae; one mesiodorsal and two ventral papillae on antennal protopod; antennal scale elongate, three times as long as broad; raptorial dactylus armed with seven teeth; five epipods present; mandibular palp present; lateral margins of sixth and seventh thoracic somites rounded anteriorly, truncate posteriorly, lateral margins faintly carinate; abdomen depressed, unarmed dorsally; submedian portions of fifth abdominal somite noticeably wrinkled, pleuron smooth; sixth abdominal somite wrinkled either side of smooth midline, with a rounded longitudinal carina parallel to lateral margin; telson half again as wide as long, with three raised, smooth, longitudinal bosses; lateral and posterior surfaces wrinkled and eroded, not spinulose; four marginal teeth on telson either side of midline; prominent longitudinal carina present on lateral tooth parallel to marginal carina; dorsal surface of basal segment of uropod wrinkled and eroded, not spinulose except for terminal dorsal spine; penultimate segment of outer branch of uropod with eight graded, movable spines, last extending about to midpoint of ultimate segment; inner branch of uropod two and one-half times as long as wide; basal prolongation of uropod with inner spine much the longer.



*Remarks:* This species is closely related to the common species, *L. scabricauda* (Lamarck) and *L. glabriuscula* (Lamarck). From *L. scabricauda* the present species can be distinguished by the smaller number of teeth on the raptorial dactylus (7 instead of 9–13), the absence of spines on the posterior margins of the fifth and sixth abdominal somites, the dorsal surface of the telson and the basal segment of the uropods. *L. campechiensis* agrees with *L. scabricauda* in general body shape and in the elongate shape of the antennal scale and inner branch of the uropod. From *L. glabriuscula* the present species can be distinguished by the wrinkled lateral portions of the fifth and sixth abdominal somites, lateral and posterior portions of the telson, and dorsal surface of the proximal segment of the uropod; also, in the present species, the antennal scale and inner branch of the uropods are more elongate than in *L. glabriuscula*.

The name is derived from the type locality, the Gulf of Campeche.

*Holotype:* 1 ♂, 100.4 mm; Gulf of Campeche; 21°15'N, 92°16'W; 34–36 fms; OREGON Sta. 411; 17 August 1951; USNM 92651.

#### ***Lysiosquilla enodis*, new species**

Eyes small, cornea bilobed, set obliquely on stalk; rostral plate broader than long, anterolateral margins rounded, apex with a strong spine; carapace without carinae; one mesiolateral and two ventral papillae on antennal protopod; raptorial dactylus armed with nine teeth; no more than four epipods present; mandibular palp absent; lateral margins of sixth and seventh thoracic somites rounded anteriorly, truncate posteriorly; abdomen smooth, depressed, armed only at posterolateral angles of sixth somite; telson broader than long, roughened but not spinulose dorsally; posterior margin of telson with a large, rounded median projection, flanked on either side by two spatulate lobes followed by two sharp spines; telson armed ventrally with a median row of 17 denticles and, laterally on either side, a movable submedian spine followed by a denticle under each of the four marginal spines; inner spine of basal prolongation much the longer; penultimate segment of outer branch of uropod armed with five graded, movable, spatulate spines, last not extending to midpoint of ultimate segment.

*Remarks:* Although the Massachusetts specimens were originally identified by S. I. Smith as his *L. armata*, these specimens are quite distinct from that species. Bigelow (1894) commented on these materials, and pointed out some differences between them and *L. armata*. The nine projections on the telson separate this species from all others in the western Atlantic.

The name *enodis* is from the Latin (*enodis* = smooth) and refers to the smoothness of the fifth and sixth abdominal somites.

*Holotype:* 1 ♀, 57.5 mm; off Vineyard Sound, Massachusetts; 17–27 fms; U. S. Fish. Comm. Sta. 1247-1251, from the stomach of a flounder; S. I. Smith; 1887; USNM 12787.

*Paratypes:* 1 fragmented ♂; data as in holotype; USNM.

1 broken ♀; off North Carolina; 35°35'N, 74°58'W; 27 fms; ALBA-TROSS Sta. 2296; 20 October 1884; USNM 8816.

***Lysiosquilla schmitti*, new species**

Eyes small, cornea hemispherical, set obliquely on stalk; rostral plate rectangular, half again as long as broad; anterolateral margins angled; anterior margins concave, sloping to obtuse apex; carapace without carinae; antennal protopod without papillae; raptorial dactylus armed with ten to eleven teeth; four epipods present; mandibular palp absent; lateral margins of sixth and seventh thoracic somites concave; abdomen smooth, depressed, posterolateral angles of sixth somite acute; telson much broader than long, with median crest on posterior fourth; false eave of telson with an obtuse lateral prominence, separated from crest by a concavity; ventral armature of telson, on either side, consisting of a row of seven to nine submedian denticles, a movable submedian spine lateral and anterior to the denticles, and four sharp lateral spines with a smaller denticle between each; inner spine of basal prolongation of uropods much the longer; outer margin of penultimate segment of uropods with four to five movable, graded, spatulate spines, last extending about to midpoint of ultimate segment.

*Remarks:* A small *Lysiosquilla*, closely related to the western Atlantic *L. grayi* Chace, *L. antillensis* Manning, and *L. hancocki* Manning. However, *L. schmitti* can be distinguished from these and all previously described species by the configuration of the telson, which has the false eave divided into a sharp or rounded median crest on its posterior fourth, flanked on either side by an obtuse or rounded lobe.

The species is named for Dr. Waldo L. Schmitt, who collected the specimens and who laid the foundation for the systematic studies of American stomatopods.

*Holotype:* 1 ♂, 20.2 mm; seining beach, Long Key, Tortugas, Florida; dug from sand; W. L. Schmitt; 7 August 1930; USNM 107874.

*Paratypes:* 1 ♀, 27.4 mm; Tortugas, Florida; W. L. Schmitt; 5 August 1930; USNM.

2 ♂ ♂, 21.7–24.7 mm; 5 ♀ ♀, 18.5–24.9 mm; Long Key, Tortugas, Florida; dynamite in flat of seining beach; W. L. Schmitt; 16 August 1930; USNM.

***Lysiosquilla floridensis*, new species**

Eyes small, cornea subglobular, set transversely on stalk and overhanging stalk laterally; rostral plate with anterolateral angles spiniform, extending beyond median spine; carapace without carinae; antennal protopod with one large ventral and one small mesial papilla; raptorial dactylus armed with nine to eleven teeth; five epipods present; mandibular palp absent; abdomen smooth, depressed, posterolateral angles of sixth somite acute; telson with a dorsal transverse row of five spines; posterior armature, on either side of the midline, consisting of three sub-

median denticles, outer by far the largest, and a large, movable, submedian spine flanked laterally by four large fixed teeth; a minute denticle present between each of the four fixed posterior teeth; inner spine of basal prolongation of uropod much the longer; outer margin of penultimate segment of uropod with six graded, movable spines, last extending past the midpoint of the ultimate segment.

*Remarks:* This small *Lysiosquilla* closely resembles *L. digueti* Cou-tiere from the eastern Pacific. *L. floridensis* differs from *L. digueti* in lacking the mandibular palp and in having more teeth on the raptorial dactylus (9-11 instead of 6-8). There is also one major color difference, in that the Atlantic species lacks the prominent black spot on the postero-lateral angles of the carapace.

The name is derived from the type locality.

*Holotype:* 1 ♂, 48.0 mm; shoreline along Cape Florida, Key Bis-cayne, Miami, Florida; C. R. Robins and class; 15 May 1961; USNM 107875.

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